

REMARKS

Claims 1-6, 8-15, and 17-26 remain pending. The limitation of claim 7 has been incorporated into claim 1 and the limitation of claim 16 has been incorporated into claim 10; claims 7 and 16 are cancelled, and the dependency of claim 17 is corrected. Claims 1 and 10 have also been amended as disclosed in paragraph [0022], at the bottom of page 5 of the present application.

Rejection Under 35 U.S.C. § 102(b) over Kim

Claims 1-5 and 8 stand rejected under 35 U.S.C. § 102(b) as anticipated by Kim, U.S. Patent 5,501,083. Applicants respectfully traverse the rejection and request reconsideration of the claims.

Kim discloses system for driving a compressor either with a commercial power source or with an auxiliary solar power source. Abstract. The control logic for using the auxiliary source is whether the primary power source has failed or compressor frequency has dropped below a minimum frequency (as in a power failure of the commercial power source). Column 4, lines 24-27, lines 38-44. The Kim patent does not disclose a controller that selects a supplemental power source when operating in a rapid transient mode which is upward. In contrast the Kim patent discloses a controller that is operable only to switch to a supplemental power source if the first source fails or fails to maintain its compressor at a minimum frequency.

In addition, the Kim patent fails to disclose or suggest a controller that operates to charge a supplemental power source. The Kim supplemental power source is a solar cell module. Column 2, lines 19-26.

For these reasons, Applicants believe that claims 1-3 and 8 are patentable over the Kim reference. Reconsideration and allowance of the claims are thus respectfully requested.

Rejection Under 35 U.S.C. § 102(b) over Hewitt

Claims 1-5 and 8 stand rejected under 35 U.S.C. § 102(b) as anticipated by Hewitt, U.S. Patent 6,034,445. Applicants respectfully traverse the rejection and request reconsideration of the claims.

The Hewitt patent describes a system for switching between power sources. The Hewitt system lacks a controller that selects a secondary power source when operating in a rapid transient mode which is upward. Instead, the Hewitt system controller operates to disconnect a power bus from the load when a new power source is connected, thus preventing a power surge.

Abstract; column 1, lines 38-45.

In addition, the Hewitt patent fails to disclose or suggest a controller that operates to charge a supplemental power source.

For these reasons, reconsideration and allowance of the claims are thus respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Hewitt in View of Aoyagi et al.

Claim 6 has been rejected under 35 U.S.C. § 103(a) as unpatentable over Hewitt, U.S. Patent 6,034,445 in view of Aoyagi et al, U.S. Patent Application Publication 2001/0051291. Applicants respectfully traverse the rejection and request reconsideration of the claim.

As discussed in the section above, the Hewitt patent fails to disclose a system that includes a controller that selects a supplemental power source when operating in a rapid upward transient mode. In the Hewitt system, the controller operates to suppress power surges when one power source is disconnected and another is connected. Moreover, the Hewitt patent does not

describe a controller that operated to charge a supplemental power source during normal operational mode. Finally, the Hewitt patent does not disclose a supplemental power source that is a capacitor.

The Office Action turns to the Aoyagi reference for disclosing a capacitor as a power source, which the Office Action argues would be obvious to substitute “instead of a solar power source as the supplemental power in the system of Hewitt.” Applicants believe that the Examiner means to refer to the Kim system, as the Hewitt patent does not mention solar power sources. See Hewitt, column 1, lines 17-24 (power sources include vehicle batter, generator, and “shore” power from a commercial power system); compare, Kim, Abstract (auxiliary solar power source).

Whether the primary reference is Kim or Hewitt, however, neither Kim or Hewitt concerns a system for providing auxiliary power during a rapid transient mode which is upward, and so there is no reason to replace one of the power sources identified in the primary reference with a capacitor. None of the references teaches or suggests that a capacitor is a substitute for a solar power source, and no other evidence is of record that it is “well known to use a capacitor as a substitute for a solar source,” as argued in the Office Action.

Furthermore, there is no reason to modify the controller of Kim or Hewitt to one that switches to a supplemental power source when operating in a rapid transient mode which is upward.

Finally, there is no reason to modify the controller of Kim or Hewitt to one that controls charging of said supplemental power source during said normal mode.

For these reasons, reconsideration and allowance of the claim are thus respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Hewitt in view of Raiser

Claim 9 has been rejected under 35 U.S.C. § 103(a) as unpatentable over Hewitt, U.S. Patent 6,034,445 in view of Raiser, U.S. Patent 6,616,424. Applicants respectfully traverse the rejection and request reconsideration of the claim.

The Hewitt patent describes as power sources a vehicle battery and generator, both of which are powered or charged by the vehicle engine, and a commercial power system. None of these sources seems amenable to charging via regenerative braking of the Hewitt compressor motor. Further, while the Raiser patent discloses a traction battery that may be charged by regenerative braking of a vehicle, it does not disclose or suggest using a regenerative braking of a compressor motor to charge a supplemental power source of that motor. Further, the references do not disclose or suggest a controller that regeneratively brakes the motor when operating a compressor in a rapid downward transient mode.

Moreover, the combination of references still does not overcome the deficiencies of the Hewitt patent as described above in regard to independent claim 1.

For these reasons, reconsideration and allowance of the claim are thus respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Hewitt in View of Raiser and Aoyagi et al.

Claims 10-20 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Hewitt, U.S. Patent 6,034,445 in view of Raiser, U.S. Patent 6,616,424 and in view of Aoyagi et al, U.S. Patent Application Publication 2001/0051291. Claim 16 has been cancelled. Applicants respectfully traverse the rejection and request reconsideration of the remaining claims.

It is well-settled law that the cited reference must be analogous art in order to be the basis of an obviousness rejection. To be analogous art, the reference must either be in the field of Applicants' endeavor or be reasonably pertinent to the particular problem that Applicants sought to resolve. *In re Clay*, 23 U.S.P.Q.2d (BNA) 1058, 1060 (Fed. Cir. 1992). Applicants submit that the Hewitt patent is nonanalogous art with regard to the fuel cell system claims 10-20, because the Hewitt patent is neither in the field of fuel cells, nor is it reasonably pertinent to the particular problem of accommodating a rapid transient load change on a compressor that Applicants sought to resolve; see Background of the Invention, pages 1-2.

The Hewitt patent is unrelated to fuel cell systems. The Hewitt patent describes a refrigerator system with a controller that operates to disconnect a power bus from a load when a state of one of two power sources changes and to re-connect the power bus to the load after a time delay so as to prevent power surges. Fig. 1 & column 1, lines 24-24, 36-46. The Hewitt patent is concerned with "power monitoring and specifically to monitoring power sources for recreational vehicles." Further, the Hewitt patent is concerned with averting power surges to appliances of recreational vehicles when the power source is changed, which is a problem unrelated to the one Applicants sought to resolve.

Therefore, the Hewitt patent is nonanalogous art and may not form the basis of an obviousness rejection.

Moreover, in the present claims, a controller selects a supplemental power source when operating in a rapid transient mode which is upward and also controls charging of the supplemental power source during normal mode. None of the references teaches these aspects of Applicants' claimed fuel cell system. In addition, none of the references teaches a system in which a controller operates to charge a supplemental power source using power generated by a

fuel cell, as in claim 17, or to use the motor it powers as a source of charging current during regenerative braking as in claim 19. Applicants note that the system in column 1 of the Raiser patent is configured to obtain regenerative braking from braking of a vehicle, not from a motor driving a compressor.

Thus, the Hewitt patent is nonanalogous art to these claims, and none of the cited references teaches or suggests the controller of these claims, its relationship to the other elements of the claimed fuel cell systems, or the particulars of dependent claims 17 and 19.

For these reasons, reconsideration and allowance of the claims are thus respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Raiser in View of Kim

Claims 21-23 and 25-26 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Raiser, U.S. Patent 6,616,424 and in view of Kim, U.S. Patent 5,501,083. Applicants respectfully traverse the rejection and request reconsideration of the claims.

The combined references fail to suggest or disclose at least the feature of claims 21-23, 25, and 26 of regeneratively braking a motor associated with said compressor to produce charging current for said supplemental power source when operating in said rapid transient mode which is a downward rapid transient mode. The Office Action relies on the disclosure of Raiser at column 1, lines 39-40, but this passage teaches only that a traction battery can be regenerated by converting kinetic energy in slowing down of a vehicle into electrical energy stored in the traction battery. This passage does not suggest using a motor associated with the compressor, which is in turn powered by Applicants' supplemental power source during an upward transient mode, to produce charging current for the same supplemental power source.

For this reason, reconsideration and allowance of the claims are thus respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Raiser in View of Kim and Aoyagi et al.

Claim 24 has been rejected under 35 U.S.C. § 103(a) as unpatentable over Raiser, U.S. Patent 6,616,424 and in view of Kim, U.S. Patent 5,501,083 and further in view of Aoyagi et al., U.S. Patent Application Publication No. 2001/0051291. Applicants respectfully traverse the rejection and request reconsideration of the claims.

The addition of the Aoyagi reference fails to overcome the deficiency of the first two references with regard to underlying independent claim 21. Therefore, claim 24 is patentable over these references for the reason discussed above.

Allowance of claim 24 is thus respectfully requested.

Conclusion

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at

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Respectfully submitted,

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